Temporal Compositing Periods and Spatial Grids

MODIS Science Team Meeting Panel
Track A, Thursday 3:30 pm., Bld. 26, Rm. 205

Moderator: Robert Wolfe
Panel Members:

Alan Strahler	Steve Running	Alfredo Huete
Piers Sellers	Al Fleig	Bob Evans
D. Tanre	John Townshend	B. Gao
Kathy Strabala		

Temporal Compositing Periods

Ideally the Temporal Compositing Period Should Be:

- Short enough to not mask the trend in physical phenomena
- Long enough to:
  - minimize error through multiple observations
  - allow for missing observations due to cloud cover and orbit coverage patterns
- The same or multiples of the same period for all products for inter-comparison

Issues:

- Some physical phenomena vary at different rates than others
- Amount of cloud cover varies depending on season and earth location
- EOS orbit provides many more observations at poles then at equator

Temporal Compositing Periods (con't)

Other important considerations:

- Starting day of time period
- Method of resynchronization with beginning of month or year
- Ability to easily aggregate to longer time periods, months, quarters, years
- Definition of a day (data-day)
- Comparison with heritage products or products from other instruments

Temporal Compositing Periods from Heritage Instruments

- Land Products (AVHRR, ...)
- Ocean Products
- Atmosphere Products

Proposed Temporal Compositing Periods for MODIS Standard Products

- Atmosphere: TBD (to be determined)
- Land: 1 day, 1 week, 8 days, 16 days, month, 32 days, 96 days, 1 year
- Oceans: 8 days

Temporal Compositing Periods for Climate Modeling Grid (CMG) Products

- Standard time period is based on 10 day periods (approximately) starting at the beginning of each month: days 1-10, 11-20, 21 to end of month; also, monthly, quarterly and yearly products are allowed

  If a different time period is chosen for the near or at resolution products, how will these product be generated efficiently?

Spatial Grids

Standard Product Grids

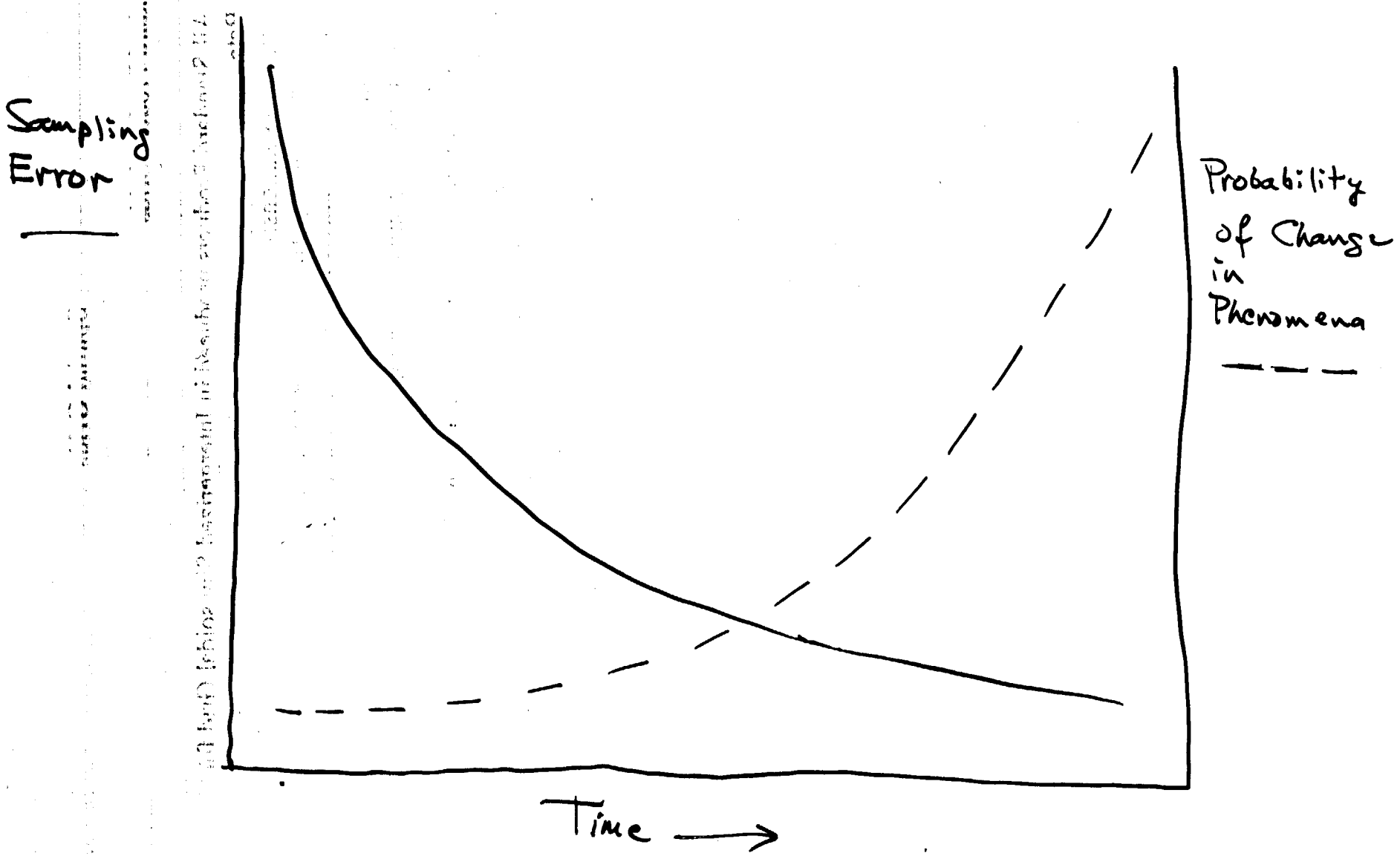
- All Standard Products produced in Intergerized Sinusoidal Grid for Beta
- Spatial Resolutions:
  - Atmosphere: 10 arcmin (18.3 km)
  - Land: 30 arcsec (920 km), 15 arcsec (460 m), 7.5 arcsec (230 m)
  - Ocean: 2.5 arcmin (4.6 km)

- Should Land Discipline Nest below 1 km?
- Heritage Grids are needed:
  - Polar: Lambert Azimuthal Equal-Area
  - Land: Goodes Homolosine

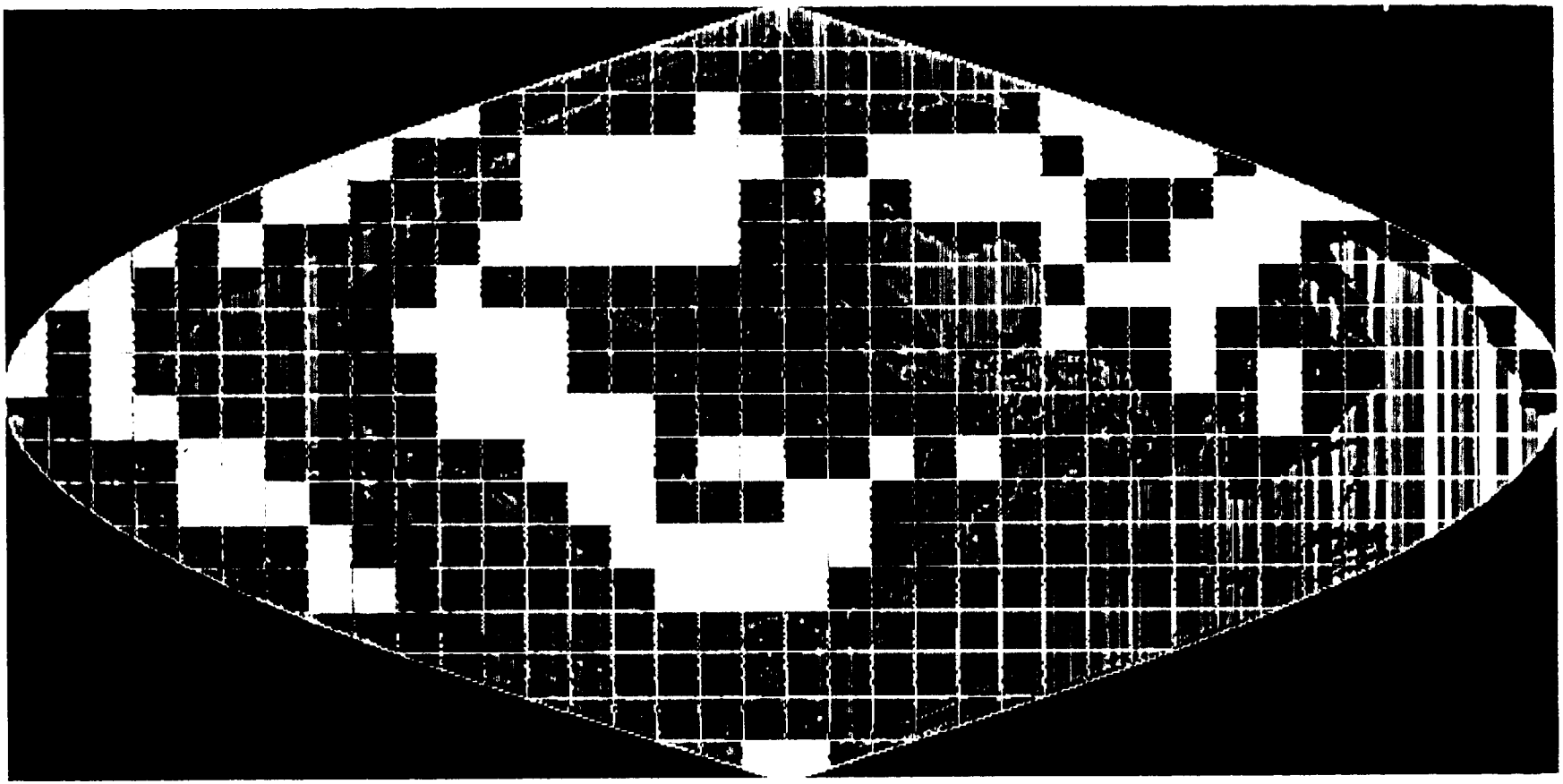
  How will they be produced and who will produce them?

Climate Modeling Grid Products

- Standard now specified
- Do ATBDs need to be updated?
- Are they now considered Standard Products?
- Spatial Resolutions:
  - Atmosphere: 0.5 deg.
  - Land: 0.25 deg., 0.5 deg.
  - Ocean: 0.5 deg.
- Aggregation methods



R. Wolfe 5/2/96



Preliminary List of MODIS L3 Climate Model Products

Robert Wolfe/MODIS

EOS SWAMP Meeting

March 21, 1996

Land Products

Vegetation Indices	0.25 deg.	8-16 day
Land Surface Temperature	0.5 deg.	8-16 day
Land Cover Classification	0.5 deg.	32 day
Leaf Area Index, Fraction of Photosyntheticly Active Radiation	0.5 deg.	8-16 day
Production of Photosynthesis-Respiration	0.5 deg.	8-16 day
Vegetation Net Primary Production	0.5 deg	1 year
Snow Cover, Sea-ice Extent	0.25 deg.	7-16 day
Thermal Anomalies	0.25 deg.	8-16 day
BRDF/Albedo	0.25 deg.	16 day

Atmosphere/Ocean Products

Atmosphere

Joint Aerosol, Cloud, H2O	0.5 deg.	10 day
Joint Aerosol, Cloud, H2O	0.5 deg.	1 month
Stability, O3, IR-H20	0.5 deg.	1 month

Ocean

Sea Surface Temp. Group (4 to 5 products)	0.5 deg.	8 day
Ocean Color Group A [Gordan] (5 to 10 products)	0.5 deg.	8 day
Ocean Color Group B (4 to 8 products)	0.5 deg.	8 day

Notes

1. This is a very preliminary list and is subject to MODIS Science Team approval.
2. The Land product's time period will be discussed at the next MODIS science team meeting.
3. These are only products in the EOS equal-angle grid. There will be additional coarse resolution Atmosphere products in the equal-area grid.